

Abstract

A swellable polymer gel composition for use in subterranean formations.

10 The composition comprises water, a water soluble polymer, a water soluble crosslinking system and a swelling agent. The crosslinking system may be either a redox system or a chelating system. The amounts of the polymer and the crosslinking system are effective to form a substantially uniformly reacted tri-dimensional gel structure. To the gel solution, is added a swelling agent in an amount sufficient to increase the volume of the gel a
15 predetermined percentage. The swelling agent may be a natural or a synthetic agent. A strengthening agent may be added to increase the gel strength of the composition. The composition has numerous uses and is particularly useful in oil industry applications such as plugging wells, sealing casing leaks and reducing water production from water-bearing hydrocarbon formations. The composition is economically produced, preserves the
20 wellbore for future reentry in plugging operations, inhibits corrosion of casing by the hydration of water, inhibits the leaching of hazardous metal into the environment, and continuously expands in the presence of water.

25 MSM/225896